Step Academy official

Model Town Grw PH: 03016652757

STUDENT NAME	
PAPER CODE	16919
TIME ALLOWED	
Paper Date	

CLASS	I.COM (PART-I)
SUBJECT	Business Maths
TOTAL MARKS	
Paper Type	

Write short answers of the following questions.

1 . Define ratio.

2 . Define rate.

3 . Distinguish rate from ratio.

4 . Divide Rs. 60,000 in the ratio 5:7.

5 . The saving income ratios of two persons are $\frac{1}{9}$ and $\frac{2}{3}$. Who is saving more?

6 . Express 48.5% as a common fraction.

7 . What is ratio between 128 kg and 16 kg.

8 .
Three men invested Rs. 18,000, Rs. 12,000 and Rs. 6,000 respectively. How should they share out of profit of Rs. 3,600?

9 . Distribution Rs. 15,000 in the ratio 3:2.

10 . Define proportion.

11 . Give key point of direct proportion.

12 . Write important characteristic of inverse proportion.

13 . Give an example of continued proportion.

14 . Give an example of compound proportion.

15 . Write two examples of inverse proportion.

16 . Find the missing terms in each case: 4: 9 :: ? : 54 and 4 : 30 :: 20 :?

17 . What is necessary condition for a proportion?

18 . Write rule of proportion that helps in finding missing tem of given proportion.

19 . Find the value of x from x : 250 :: 4 : 50.

20 . Note down three basic calculation problems relating to percentage.

21 . Translate the statement “a% of b is c” into an equation.

22 . What is 3% of 20%?

23 . Express 3.2 as percentage.

24 . Convert $56\frac{1}{4}$% into decimal fraction.

25 . Express 66.67% as common fraction.

26 . What number increased by 30% of itself becomes 390?

27 . What amount increased by 20% is Rs. 6000?

28 . What is $13\frac{1}{4}$ % of Rs.400?

29 . Calculate 45% of 900 men.

30 . What is 25% of 620 gallons of petrol?

31 . Find $13\frac{1}{4}$ % of Rs. 40,000.

32 . What number increased by 20% of itself equals 102?

33 . 200 is10% of what number?

34 . 120% of what number is 200?

35 . Find 20% of Rs.3,25,000.

36 . Define discount rate.

37 . $8\frac{1}{2}$cm is what percentage of $25\frac{1}{2}$

38 . Rs 250 is what percentage of Rs. 10,000?

39 . 160 is 20% of what number?

40 . $\frac{1}{3}$ is what percentage of $\frac{1}{4}$?

41 . Write formulas of calculating stated price if discounted price and discount rate are available.

42 . What is quantity discount?

43 . Give the formula of computing discount rate for given quantity discount offer.

44 . Define commission.

45 . How commission is different from wage?

46 . What is commission on Rs 3000 @$33\frac{1}{3}$% ?

47 . Define profit.

48 . Define profit and loss.

49 . How profit is similar to loss and how different from loss?

50 . Define profit in relative terms.

51 . Define mark-up.

52 . What is rate of profit?

53 . What is rate of loss?

54 . Define depreciation.

55 . Name two methods of calculating depreciation.

56 . Give mathematical characteristics of original cost method of depreciation.

57 . What is fixed and what is variable as regard declining balance method?

58 .
Cost=Rs.1,00,000, Scrape value =0, Life =10 years. Calculate Depreciation for 5^{th} and 7^{th} year (assuming that they are equal)?

59 .
Asset cost =Rs. 1,00,000, Rate of depreciation =10% per year, value of the asset after 1^{st} and 2^{nd} year=?

60 . Asset cost=Rs.2 lakh, Asset cost after n years =Rs.131220 @10% per year. What is n?

61 . What is principal?

62 . What is principal?

63 . Define interest.

64 . Explain simple interest.

65 . Write formula to find simple interest.

66 . Write formula to find accumulated amount using simple interest.

67 .
What will be the accumulated amount after 3 years on an investment of Rs.2,50,000 at 9% simple interest?

68 . Write the formula S.I=PIN in terms of N.

69 . Which rate is required to make an amount double in a year?

70 . Define compound interest.

71 . Write the formula for finding compound interest for whole period by the method of compound interest.

72 . Differentiate compound interest method from simple interest method.

73 . What is compound interest on Rs. 80,000 invested for 3 years @ 8% compounded quarterly?

74 . Principal =P, Accumulated amount=2P, Period =4 years, Rate=? Compounded annually.

75 . How much time is required to have A=2P@8% per year?

76 . Find the difference in two interests both charged on Rs.2000@ 10% per annum for 5 years.

77 . Calculate compound interest earned on Rs.5000 invested for 6 years at the rate of 7% per annum.

78 . What is an annuity?

79 . What are the types of an annuity?

80 . What are the characteristics of an annuity?

81 . Define perpetuity.

82 . Define ordinary annuity.

83 . Define annuity due.

84 . What is amount or maturity value?

85 . Differentiate between ordinary annuity and annuity due.

86 . Differentiate between ordinary annuity and perpetuity.

87 . Compute the accumulation factors…….for I =0.03 and n=12.

88 . Compute the discount factor……..when i=0.0005 and n=25.

89 . Find…….for n=10 and i=5%.

90 . Find ……..when i=5% and n=10.

91 . Define linear equation.

92 . What is golden rule of algebra with reference to solution of an equation?

93 . What are the rules of transposition?

94 . If $\frac{1}{4}$ of an amount is Rs. 60, what is the amount?

95 . Find two consecutive odd integers whose sum is 12.

96 . If 9-times of a number is 180, find the number.

97 . Find two consecutive odd integers whose sum is 36.

98 . Solve $\frac{2x}{7} + 1 = 0$

99 .

Write quadratic equation in y.

100 . What is quadratic formula?

101 . Write first two steps of method of completing square.

102 . Find solution set of $y^2 - 9 = 0$

103 . What is discrimination?

104 . What are the extraneous roots?

105 . Solve by factorization $x^2 - 7x + 12 = 0$

106 . Solve by quadratic formula $x^2 - 7x + 12 = 0$

107 . Solve by quadratic formula $x^2 - 3x + 2 = 0$

108 . Deduce quadratic equation from $\sqrt{\frac{x}{2-x}} - 6\sqrt{\frac{2-x}{x}} = 1$

109 . Rewrite $5^{1+x} + 5^{1-x} = 10$ in quadratic form.

110 . Solve: x+y=6 and x-y=2.

111 . Are the following equations inconsistent? 2x+3y=10 and $x + \frac{3}{2}y = 5$

112 . Name three methods of solving set of simultaneous equations.

113 . Define a function.

114 . What is range of a function?

115 . Define independent variable.

116 . Define dependent variable.

117 . Define constant function.

118 . Write polynomial function of no degree.

119 . Write polynomial function of degree one.

120 . Give domain of the function $\phi(x) = \frac{x}{x-3}$

121 . What is matrix?

122 . What is order of the matrix?

123 . Define row matrix.

124 .

What is symmetric matrix?

125 . Define transpose matrix.

126 . Define scalar matrix.

127 . Find the value of “x” if is a singular matrix.

128 . Define singular matrix.

129 . Define ad-joint of a matrix.

130 . If A= find A^2

131 . Define inverse matrix.

132 . Express the system of equations 3x-4x=16 and 9x-18y=120 in matrices form.

133 . Define symmetric matrix.

134 . Find x so that is singular.

135 . Name any three types of matrix.

136 . Define diagonal matrix with example.

137 . Define binary number system.

138 . Define decimal number system.

139 . How a decimal number is converted into a binary number?

140 . What are the meanings of 0 and 1 for computer?

141 . Convert 786 into a binary number.

142 . Convert $(1110)_2$ into decimal number system.

143 . Simplify $(1001)_2 \times (101)_2$

144 . Find difference of $(101)_2$ and $(10)_2$

145 . Find the sum of $(101)_2$ and $(11)_2$

146 . Convert into base two system32.

147 . Convert 93 to a binary number.

148 . Simplify: $(1100)_2 - (111)_2$

149 . Convert into decimal base system $(1110)_2$

150 . Convert into binary system $(21)_{10}$

Write detailed answers of the following questions.

1 .
Waseem spends Rs.24 on breakfast out of an income of Rs. 120 per day. Aftab spends Rs. 20 on breakfast out of an income of Rs. 90 per day. Who spends more on his breakfast as regard to their daily income?

2 .
Three partners invested Rs. 18,000, Rs.16,500 and Rs. 12,500 respectively. If the third partner got Rs. 4,625 as profit what was: a) The total profit? b) Profit of 1^{st} and 2^{nd} partners.

3 .
A is half as old as B and B is half as old as C. The sum of their ages is 105 years. Find ages separately.

4 .
A person has a wife, 2 sons and 1 daughter. He owns Rs. 10 lakh. He gifts $\frac{1}{10}$ share to his wife and remaining amount to his children. The share of every son is double than that of daughter. Find share of each person?

5 .
A profit of Rs. 4,58,500, is earned from business by four partners. This profit is to be allocated to the four partners in the ratio $\frac{4}{5} : \frac{1}{8} : \frac{2}{3} : \frac{4}{7}$. Determine the amount of profit of each partner.

6 . If the price of 50 ready-made shirts is Rs. 36,500 then what will be the price of 85 such shirts?

7 .
If the price of three suits each of six meters is Rs. 2,250. How many such suits can be purchased by the amount of Rs. 6,750? Also find the per meter price of the cloth.

8 .
An army formation of 900 men has a food stock for 30 days. On the same day 150 army men leave the formation. Find for how many days the same food is sufficient for the remaining army men?

9 .
Some quantity of rice is sufficient for 198 persons at the rate of $\frac{1}{6}$ kg per person. For how many persons the same quantity of rice be sufficient if each person is to receive $\frac{1}{8}$ kg of rice?

10 .
Rs.8,000 is enough for 4 persons for 40 days. For how many days Rs.15,000 will be enough for 5 persons?

11 .
Divide Rs. 880 in three parts so that 3 times the first, 5 times he second and 8 times the third are all mutually equal.

12 .
The estimated cost of a certain product was 12,000 rupees but the actual expenditure exceeded it by Rs. 3,600. Find the percentage increase due to expenditure.

13 .
On a cut-price shop, the price of a pair of shoes was Rs. 350, which is 30 percent less of the actual price. Find the original price.

14 .
A and B are in partnership. A gets as double as B's profit. If A gets Rs.4600 as profit then find what will B get? What is the total profit and ratio between the profits of A and B?

15 .
An item marked with price tag of Rs. 200 is available at 15% discount. Find the discounted price and amount of discount.

16 .
On a deal. The car dealer allowed 5% discount to a customer. Fin discounted and actual price of the car, if the discount allowed was Rs. 6,000.

17 .
A retailer purchased eight T-shirts at the rate of Rs.120 each on 20% trade discount, he will get further $2\frac{1}{4}$ % cash discount if he paid the total amount within a week of delivery. Find the amount which he has to pay i) within a week ii) after the week

18 . A shopkeeper made a profit of 20% in selling 10 kg of rice for Rs. 1200. What is per kg cost of rice?

19 .
A dealer of household equipment paid Rs.2,00,000 for 15 refrigerators. He sold $\frac{2}{5}$ of them at Rs. 15,000 each and remaining at Rs. 14,000 each. What was his rate of profit?

20 .
Suppose you sold two buildings at Rs. 6,00,000 each. On one your rate of profit was 10% on the other your loss was 8.5%. how much did you loss or gain on the total transaction?

21 .
Find after how many years the value of a machinery reduced to Rs.53,000 from Rs.65,000 at the rate 4% p.a?

22 .
A salesman sells 100 sets of artificial jewellery at Rs. 980 per set at $19\frac{1}{2}\%$ commission per set. What would he his commission?

23 .
Find the annual rate of depreciation to convert a fixed asset of cost Rs.24,000 to Rs.17,950 in 4 years.

24 . One kg apples cost Rs.40. they are sold at the profit of $12\frac{1}{2}$ %. Find the selling price.

25 .
A furniture dealer sold a second hand sofa set for Rs. 3000 at $2\frac{1}{2}\%$ mark-up. How much did it cost him?

26 . A watch was sold for Rs.850 on $1\frac{1}{2}\%$ loss. Find the cost price of the watch.

27 .
Find the value of motor car costing Rs. 2,50,000 at the end of 7 years, if depreciation at $7\frac{1}{2}\%$ p.a is written off on the value at the end of each year.

28 .
How much interest will be charged by the bank for a loan of Rs.7,50,000 for 3 months if the rate is $4\frac{1}{4}\%$ per year?

29 . Find compound interest due in case of Rs.1000 loaned for 5 years at 6% p.a.

30 . At what rate of compound interest will Rs.60,180 amount to Rs.1,00,000 in 5 years.

31 . At what rate of compound interest will Rs.60180 amount to Rs.1,00,000 in 4 years?

32 .
A man needs to borrow Rs.30,000 for two years. Which of the following loan is more advantageous to him? A)4.1% simple interest B)4% per annum compounded semi-annually.

33 .
For how many years Mr. Asad should keep Rs.50,000 so as to accumulate to the amount of Rs.73205 @10% compounded annually.

34 .
A man borrowed Rs 1 lakh at 6% simple interest and invested the same amount at 6% compounded quarterly. What he gains after 5 years?

35 .
The capital of a business grows @ 12% per annum compounded quarterly. If present capital is Rs. 3,00,000, what will be the capital after 3 years.

36 . Find the amount to repay after $4\frac{3}{4}$ years on a loan of Rs.99,000 at 9% compound monthly.

37 .
Find the amount of an annuity due of Rs.2000 per month for a year if the money is grow at the rate of 12% p.a compounded monthly.

38 .
What is the sum of an annuity of Rs. 10,000 payables at the beginning of each year for 8 years @6% compounded annually?

39 . Compute the compound interest on Rs.500 for $6\frac{1}{2}$ years at $2\frac{1}{2}\%$ compounded semi-annually.

40 .
Mr. Sajjad wanted to get 10 monthly installments of Rs.500 each to meet the school expenses of his son. How much amount he should deposit now to a bank if the rate of interest chargeable by the bank is 18% p.a compounded monthly.

41 .
Mr. Zaheer deposited Rs.2,00,000 in H.B.L. “Mahana Amdani Account” according to the rules of the account the maturity period of the scheme is 5 years. First monthly installment is due after 30 days of

deposit. Find the amount of monthly installment with the assumption that whole deposited amount will be exhausted.

42 .
Mr. Farooq purchases a washing machine on installments. The amount of monthly installment is Rs. 640 and continues for a year. If the interest rate charged is 10% compounded monthly, find each price of the machine.

43 .
Mr.G.M. Shah purchased an old car on installments which requires Rs. 1,00,000 as down payment and installments of Rs.10,000 per quarterly, find the cash price of the car.

44 .
Find the present value of perpetuity of Rs.5000 payables at the end of every six months if the rate of interest is 8% p.a compounded semi-annually.

45 . Solve : x-2[3x-2(x+1]+5=16

46 . Solve :[2(3x-4)-(4x-2)]-4(x+10)=14x-20

47 . Find the two consecutive integers whose sum is 99.

48 . The sum of two consecutive even integers is 46. Find the integers.

49 .
The perimeter of a rectangle is 42 feet and its length is 3 feet less than 5 times its width. Find the dimensions of the rectangle.

50 . The sum of these consecutive numbers is 27. Find the numbers.

51 . Solve the following equation: $\frac{1}{x}+\frac{2}{x}=15$

52 . Solve the following equation: $\frac{2y}{13}-\frac{13y}{2}=-15$

53 .
Find the number if 10 is add to the number and the result is multiplied by 5 and then 20 is subtracted the result is 100.

54 . The sum of three consecutive even numbers is 186. What are the numbers?

55 . Solve the following equation by the method of factorization:$x^2-11x+28=0$

56 . Find two numbers with sum equal to 16 and product is 60.

57 . Solve:$\sqrt{x^2-3x+2}-\sqrt{2x^2-5x}+2=\sqrt{x-2}$

58 . Solve the following equation by the method of factorization: $x^2+10x=8(2x-1)$

59 . Solve the following equation by completing square method. $25x^2-\frac{216}{25}=30x$

60 .

Solve the following equation by using Quadratic formula. $\frac{y^2}{2} - \frac{y}{6} = \frac{1}{12}$

61 . Solve the following equation by completing square method. $9x^2 - 24x = 65$

62 . Solve: $\frac{1}{x+1} + \frac{2}{x+2} = \frac{4}{x+4}$

63 . Solve: $\frac{3}{x+2} + \frac{5}{x-2} = 6$

64 . Solve: $\frac{x+2}{x-3} + \frac{x-3}{x+2} = \frac{5}{2}$

65 . Solve: $x + \frac{1}{x} = 4$

66 . Solve the following pairs of simultaneous equation: 5x+2y=64 and 2x-y=4

67 . Solve the following pairs of simultaneous equation: 3x+2y=81 and 2x-3y=15

68 . Solve the following pairs of simultaneous equation: $\sqrt{2x} + \sqrt{2}y = 1$ and $\sqrt{2}x - \sqrt{2}y = 7$

69 . Solve: $3^{x+2}3^{-x} = 6$

70 . Solve: $2^x \div 3^{2x} = 8$

71 .
During one month the bill for 25 daily newspaper and 5 Friday papers was Rs. 155. For the previous month the bill was Rs. 159 for 27 dailies and 4 Fridays. What are the price of daily newspaper and a newspaper of Friday?

72 .
Find two numbers such that $\frac{1}{2}$ of the first number plus $\frac{1}{3}$ of the second number shall equal to 90 and $\frac{1}{2}$ of the 2nd number plus $\frac{1}{5}$ of the first number shall equal to 80.

73 .
A man invested a total amount of Rs.50,000 in two schemes. The rate of return on two schemes is 5% and 6% p.a. respectively. He earned Rs.2800, during the last year as a profit of his investment, how much he invested in cash scheme?

74 .
Seven years back the age of a father was 5 times the age of his son. It will be twice after14 years. Find their ages at present.

75 . Find domain of following function: $f(x) = \frac{5}{x}$

76 . Find domain of following function: $\phi(u) = \sqrt{5u+3}$

77 . Find domain of following function: $h(v) = \sqrt{v-2}$

78 . Find the function values for each function: $f(x) = x^2 - 2x + 1$ f(1),f(-1),f(x+h)

79 .
If a Rs. 60,000 Honda CD-70 depreciates 4% of its original value each year. Find a function f that express the motorcycle's value V after t years.

80 . Is y a function of x? Is x a function of y? $x^2 + y^2 = 1$

81 . Identify the type of following functions either constant linear or quadratic: $h(v) = 10 - 3y$

82 .
The formula for the area of an equilateral triangle of side length x is $A = \frac{x^2}{2}$. Is the area "A" function of side length x?

83 . Identify the type of following functions either constant linear or quadratic: $f(x) = \frac{x^2}{2}$

84 . If $A = \begin{bmatrix} 4 & 7 \\ 4 & 15 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 8 \\ 2 & 20 \end{bmatrix}$ then (A+B)

85 . Solve (if possible) the following system of equation by using matric. 4x - 7y = 9 ; 3x - 2y = 100

86 .
Solve (if possible) the following system of equation by using matric. -120x+160y=200 ; -100x+200y=100

87 .
If the price of 16 dozen of eggs and 10 breads of large size is 332. The price of 10 dozen of eggs and 8 breads of large size is 225. Find prices of per dozen eggs and per bread.

88 . Expand the following determinant. $|B| = \begin{vmatrix} 3 & 1 \\ 7 & 10 \end{vmatrix}$

89 .
If 5 fans and 10 room coolers cost Rs.39250. where less 10 fans and 5 room coolers of same size and same quality cost Rs.26000. find the price of a fan and a room cooler.

90 . If $A = \begin{bmatrix} 4 & 7 \\ 4 & 15 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 8 \\ 2 & 20 \end{bmatrix}$ then (2A-B)

91 . Expand the following determinant. $|I| = \begin{vmatrix} 1 & 0 \\ 0 & 1 \end{vmatrix}$

92 . Expand the following determinant. $|C| = \begin{vmatrix} 10 & 5 \\ 5 & \frac{1}{2} \end{vmatrix}$

93 . Find ad-joint of the following matric. $\begin{bmatrix} 4 & -7 \\ 8 & 11 \end{bmatrix}$

94 . Find ad-joint of the following matric. $\begin{bmatrix} -11 & -4 \\ -7 & 11 \end{bmatrix}$

95 . Find ad-joint of the following matric. $\begin{bmatrix} 4 & 8 \\ 3 & 11 \end{bmatrix}$

96 . Find the inverse of the following matric. $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$

97 . Convert the following decimal numbers into equivalent binary numbers: 91.374 , 59.59375

98 .
Solve the following and check your answer by converting them into decimal numbers:
$(11011)_2 + (1011)_2$, $(10000)_2 + (11111110)_2$

99 .
Solve the following and check your answer by converting them into decimal numbers:
$(11010101)_2 + (101010111)_2$, $(100100101)_2 + (100010101)_2$

100 .
Find the value of the following by changing into decimal system: $(945)_{10} + (1111)_2$,
$(101100)_2 + (86)_{10}$, $(10111)_2 - (1111)_2$